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Date of Signature

Re:	Application of:	Williams et al.
	Serial No.:	09/942,330
	Filed:	August 29, 2001
	For:	Arrangement and Method for Abating Effluent from a Process
	Group Art Unit:	1763
	Examiner:	Rudy Zervigon
	Our Docket No.:	01-330 (1003-0607)

TRANSMITTAL OF BRIEF ON APPEAL

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Respectfully Submitted,

MAGINOT, MOORE & BECK, LLP

May 2, 2005

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Enclosures

1003-0607
01-330

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January 5, 2004
Date of Signature

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BRIEF ON APPEAL

Sir:

This is an appeal under 37 CFR § 41.31 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of claims 1-14 and 21-24 of the above-identified patent application. These claims were indicated as finally rejected in an Office Action dated December 1, 2004. Three copies

of the brief are filed herewith. Please charge **$340.00** to Deposit Account 12-2252 to cover the fee required under 37 CFR § 41.20(b)(2). Also, please provide any extension of time which may be necessary and charge any fees which may be due to Deposit Account No. 13-0014, but not to include any payment of issue fees.

(1) REAL PARTY IN INTEREST

LSI Logic Corporation is the owner of this patent application, and therefore the real party in interest.

(2) RELATED APPEALS AND INTERFERENCES

A first Notice of Appeal was originally filed November 5, 2003. Applicants filed the corresponding Appeal Brief on January 5, 2004. The Examiner withdrew the case from appeal and issued another office action.

(3) STATUS OF CLAIMS

Claims 1-14 and 21-26 are pending in the application. The Examiner has withdrawn claims 25 and 26 from consideration.

Claims 1-14 and 21-24 stand rejected and form the subject matter of this appeal. Claims 1-14 and 21-26 are shown in the Appendix attached to this Appeal Brief.

(4) STATUS OF AMENDMENTS

Applicants filed a Response to Office Action dated June 12, 2003 ("Response") responsive to an Office Action dated March 12, 2003. A final Office Action dated

September 9, 2003 was designated by the Examiner to be responsive to the Response. As discussed above, Applicants filed a Notice of Appeal on November 5, 2003 and an Appeal Brief on January 5, 2004. The Examiner withdrew the case from appeal and issued an Office Action on May 5, 2004. The Applicants filed a Response to the May 5, 2004 Office Action ("Post Appeal Response") on September 7, 2004. The Examiner then issued another final Office Action on December 1, 2004 ("Second Final Office Action").

(5) SUMMARY OF THE INVENTION

Independent claim 1 is directed to a process effluent abatement arrangement that includes an enclosure, a first partition, a gas connector, a gas dispenser and an exit port. The enclosure defines an interior void. (See, for example, element 14 of Fig. 1). A first partition has a first orifice defined therein and is positioned within said interior void such that (i) the first partition divides the interior void into a first chamber and a second chamber and (ii) the first orifice is in fluid communication with said first chamber and said second chamber. Referring to Fig. 1 by way of nonlimiting example, a partition 16 divides the void 14 into a first chamber 40 and a second chamber 42. In the exemplary embodiment, the second chamber 42 has a number of subchambers 44, 46 etc. (Specificationat p.8, lines 3-7). The partition 16 includes an orifice 18 that is in fluid communication with the first chamber 40 and the second chamber 42. (See Fig. 1 and specification at p.7, lines 17-20 and p.8, lines 19-21).

Referring again to the summary of claim 1, the gas connector has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with the passageway. The passageway has an inlet and an outlet and is in direct fluid

communication with said first chamber of the enclosure. With reference to the nonlimiting example of Fig. 1, a gas connector 68 has (i) a passageway 70 defined therethrough and (ii) a gas port 72 in fluid communication with the passageway 70. The passageway 70 includes an inlet 74 and an outlet 76. (See Fig. 1 and specification at p. 7, lines 2-5). Referring again to the general summary of the invention, the gas port is disposed downstream of the inlet and upstream of said outlet. (See e.g., the gas port 72, inlet 74 and outlet 76 of Fig. 1).

The gas dispenser is in direct fluid communication with the second chamber of the enclosure. The exit port is in fluid communication with said interior void. In the exemplary embodiment of Fig. 1, a gas dispenser 78 is in direct fluid communication with the subchamber 48 of the second chamber 42. (See Fig. 1 and specification at p.11, lines 10-16). An exit port 80 is in fluid communication with the void 14. (See Fig. 1).

Claim 2 is directed to embodiments of the invention in which the second chamber has a second partition having an orifice therein. The orifices of the first partition and second partition have central axes that are offset from one another. (See, e.g., axes 56 and 58 of orifices 28 and 30, respectively, of Fig. 1).

Claim 22 is directed to embodiments of the invention in which the first orifice of the first partition is aligned with the longitudinal axis of the enclosure. (See, e.g., axes 56 of orifice 28).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 8, 10, 22 and 24 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent 4,311,671 to Notman (hereinafter, "Notman").

Claims 3-6, 21 and 23 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Notman.

Claims 7 and 11 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent 5,137,701 to Mundt (hereinafter, "Mundt") in view of Notman.

Claim 9 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Notman in view of U.S. Patent 5,384,051 to McGinness (hereinafter, "McGinness").

Claims 12-14 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mundt in view of Notman and McGinness.

(7) ARGUMENT

A. Claim 1

Claim 1 stands rejected as allegedly being unpatentable over Notman. Claim 1 includes the following limitations:

> a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in direct fluid communication with said first chamber of said enclosure, said gas port being downstream of said inlet and upstream of said outlet;

Thus, claim 1 recites a gas connector that has a passageway with and inlet and an outlet, and that also has a gas port in fluid communication with the passageway. The gas port is downstream of the inlet and upstream of the outlet.

Claim 1 is *not* obvious over Notman for a plurality of independent reasons. First, there is no motivation or suggestion to modify Notman as proposed by the Examiner. Second, even if Notman was modified as proposed by the Examiner, the resulting structure would not arrive at the claimed invention.

1. No Motivation to Modify Notman

In the rejection of claim 1, the Examiner admitted that Notman failed to teach the claim limitation of a "gas port being downstream of said inlet and upstream of said outlet". In particular, the Examiner has alleged in the 5/5/04 and 12/1/04 Office Actions that the main feed 34 of Notman constitutes the *gas connector* of claim 1, that the feed holes 32 of Notman constitute the gas connector *outlet* of claim 1, and that the sparger 30 of Notman constitutes the *gas port* of the gas connector of claim 1. (See Second Final Office Action at p.3). Thus, for the gas port (sparger 30) to be downstream of the gas connector inlet and upstream of the gas connector outlet as claimed, the sparger 30 would have to be, among other things, upstream of the feed holes 32. However, as admitted by the Examiner, "Notman does not teach that his gas port (30) is upstream of the gas connector outlet (32)." (*Id.* at p.4).

Nevertheless, the Examiner stated that it would have been obvious to "optimize the length of Alan Notman's gas connector (conduit 34) such that his gas port (30) is upstream of the gas connector outlet (32)". (*Id.*). The Examiner alleged that the motivation for such a modification was "to optimize gas mixing in Alan Notman's first chamber (12A) as taught by Alan Notman (column 1, lines 25-38; column 2, lines 9-15)." (*Id.*)

The portions of Notman cited by the Examiner do *not* teach that "optimizing gas mixing" can be achieved by making the length of the main feed "conduit" 34 such that the gas port 30 is upstream of the outlet 32. While Notman does briefly mention gas mixing in columns 1 and 2, Notman does *not* relate "gas mixing" to the relative positioning of the sparger 30 and the feed holes 32.

There simply is *no* teaching in the prior art that gas mixing can be optimized in a device such as the one shown in Notman by resizing the main feed 34. There is no teaching of what effect, if any, can be achieved by moving the sparger 30 such that it enters the catalyst bed 12A "upstream" of the feed holes 32 of the main feed 34. There can be no motivation to move the sparger (or resize the main feed 34) in order to "optimize gas mixing" because there is not teaching that moving the sparger or resizing the main feed 34 will in fact "optimize gas mixing".

It is therefore submitted that the Examiner has not provided a legally sufficient motivation or suggestion to modify Notman as proposed. For at least this reason, the rejection of claim 1 as being obvious over Notman should be reversed.

2. The Proposed Modification Does Not Arrive at the Invention

Even if Notman were modified as proposed by the Examiner, the resulting device would not arrive at the invention of claim 1. In particular, the resulting modified device of Notman would not have a gas connector having a gas port as claimed.

As the proposed modification is best understood, the main feed 34 of Notman would extend further down into the catalyst bed 12A, such that its lower end (feed hole 32) is lower than the sparger 30 within the catalyst bed 12A. Regardless of such a

modification, however, the gas connector (main feed 34) would still not *have* a gas port (the sparger 30). The sparger 30 would still be a completely different device than the main feed 34. At best, there is a separate gas port (sparger 30) that terminates in the same area as the main feed 34, but this cannot under any circumstances be construed to mean that the main feed 34 *has* or includes the sparger 30.

Applicant advanced the above stated argument in, among other things, the Post Appeal Response. In the Second Final Office Action dated December 1, 2004, the Examiner responded to this argument, stating:

> In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "Since the sparger (30) is a separate tube, it is clear that the Notman gas connector (34) does not have a gas port in fluid communication. . .") are not recited in the rejected claims. Although the claims are interpreted in the light of the specification, limitations from the specification are not read into the claims. (citations omitted).

(Second Final Office Action at p.10).

Applicants, however, do not need to read any limitations from the specification into the claims. Claim 1 recites a "gas connector which has . . . a gas port in fluid communication with said passageway. . . ." In other words, the gas connector *has* a gas port. In accordance with ordinary meaning, this means that the gas port *is a part of the* gas connector. This ordinary interpretation of the claim language is supported by the illustrated embodiments. The proposed modification of Notman does not result in the sparger 30 being a part of the main feed 34. Therefore, the main feed 34 of Notman does *not* have a sparger, or gas port.

In addition, the Examiner's proposed modification also fails to result in the sparger 30 being upstream of the main feed outlet (feed holes) 32 and downstream of the main feed inlet. In particular, because the sparger 30 does not feed directly into the main feed 34, but rather only feeds into the same general catalyst bed 12A, the sparger 30

cannot be *both* upstream of the main feed outlet 32 *and* downstream of the main feed inlet (top of the main feed 34). Specifically, under the Examiner's proposed modification, the sparger 30 is only *upstream* of the main feed outlet 32 with respect to the space in the catalyst bed 12A. The inlet of the main feed 34 is *not* in that space at all, much less upstream of the sparger 30 within that space.

The inlet of the main feed 34 is, however, upstream of the sparger 30 with respect to the "stream" in the main feed 34. However, in that context, the main feed outlets 32 is *also* upstream of the sparger 30. Thus, regardless of what perspective is used, the sparger 30 can not be both *upstream* of the outlets 32 and *downstream* of the inlet of the main feed 34.

Stated another way, assume that the sparger 30 is *upstream* of the main feed outlets 32 as proposed by the Examiner. With that assumption, if one were to continue *upstream* from the sparger 30, one can *never reach the* inlet to the main feed 34. One can only reach the inlets to the main feed 34 by *first* going downstream to the main feed outlet 32, and *then* going upstream up the passageway of the main feed 34. An object cannot be upstream of another if an intermediate point is downstream. In other words, it does not make sense to consider an upstream tributary to be downstream of an upstream point of a downstream tributary. This illogical relationship between upstream and downstream tributaries result from the Examiner's strained attempts to read claim 1 on the sparger 30 and the main feed 34 of Notman.

Thus, not only does the proposed modification of Notman fail to include a "gas connector which has . . . a gas port" as claimed, but also fails to include a gas port upstream of the gas connector outlet and downstream of the gas connector inlet, as

claimed.

As a consequence, even if it were appropriate to modify Notman as proposed by the Examiner, which it is not, the resulting combination would not arrive at the invention of claim 1.

B. Claims 2, 8 and 10

Claims 2, 8 and 10 also stand rejected as allegedly being unpatentable over Notman. Claims 2, 8 and 10 all depend from and incorporate all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that claims 2, 8 and 10 are patentable over the prior art.

C. Claim 22

While claim 22 contains some limitations that are similar to those of claim 1, claim 22 does not include a limitation directed to the location of a gas port upstream of the gas outlet and downstream of the gas inlet. Accordingly, not all of the arguments provided above in connection with claim 1 apply to claim 22.

Claim 22, nevertheless, includes the following limitations:

> a first partition having a first orifice defined therein, said first partition being positioned within said interior void such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber
>
> . . . .
>
> said first orifice has a first central axis that is substantially aligned with the longitudinal axis of the enclosure, . . . such that gas can pass from the first chamber to the second chamber through the first central axis,

Thus, the orifice in the first partition is centrally located, or "aligned with the longitudinal axis" of the enclosure, and has a first central axis. Gas passes from the first chamber to the second chamber through the first central axis, or in other words, through the centrally-located first orifice.

1. The Rejection of Claim 22 is in Error

Notman does not disclose a first orifice as recited in claim 22. In the 12/1/04 Office Action, the Examiner alleged that the grid 16a of Notman constitutes a first partition as claimed and that it has a first orifice ("central hole") that constitutes the first orifice (12/1/05 Office Action, page 3). This central hole is the opening through which the tubes 26 and 42 pass. (see Notman, Fig. 1). That central hole, however, does *not* satisfy the limitations of the first orifice as recited in claim 22.

In particular, gas cannot pass from the first chamber to the second chamber of Notman along the central axis through tubes 26 and 42, as called for in claim 22. To this end, it is noted that the Examiner alleged that the catalyst beds 12a and 12b of Notman constitute the claimed first and second chambers. (5/5/04 Office Action at p.3). The central hole (i.e. tube 42) of the grid 16a does not pass gas between those catalyst beds 12a and 12b. (See Notman, Fig. 1). While gas passes through the tubes 26 and 42, the tubes 26 and 42 do *not* have openings into either of the catalyst beds 12a and 12b. The tubes 26 and 42 extend from the large catalyst bed 14 to the heat exchanger 40.

Instead, gas *only* passes from the first chamber (catalyst bed 12a) to the second chamber (catalyst bed 12b) through off-center holes 16a. These off-center holes are not aligned with the longitudinal axis of the enclosure. (See Notman, Fig. 1).

The Examiner nevertheless maintains that gas does pass between the catalyst beds 12a and 12b through the central opening. In particular, the Examiner alleged that the "first orifice has a first central axis (collinear to central axis of 42) and being aligned (colinear) with the longitudinal axis of the enclosure, the first central axis is further *unobstructed* such that gas can pass (see flow arrows) from the first chamber to the second chamber through the first central axis." (12/1/04 Office Action at p.4) (emphasis added). In other words, the Examiner appears to be alleging that gas may freely pass from the chamber 12a to the chamber 12b through the tubes 26 and 42. It is respectfully submitted that the Examiner has mischaracterized the nature of the tubes 26 and 42. Those tubes do *not* allow gas to flow from the first chamber 12a to the second chamber 12b. Gas may pass between the two chambers 12a and 12b through the off-center openings 16a and 36a, but not through the tubes 26 and 42 in the central axis of the device.

In the response to arguments portion of the Second Final Office Action, the Examiner did not specifically address how gas passes between the two chambers 12a and 12b through the tubes 26 and 42.

Accordingly, Notman fails to teach or suggest a first orifice in communication with the first and second chambers, and which has a central axis aligned with a longitudinal axis of the enclosure as claimed, where gas passes unobstructed along the central axis from the first chamber to the second chamber. For at least this reason, it is respectfully submitted that the Examiner has failed to set forth a prima facie case of obviousness with respect to claim 22 and thus the rejection of claim 22 as allegedly being obvious over Notman is in error and should be reversed.

D. Claim 24

Claim 24 also stands rejected as allegedly being obvious over Notman. Claim 24 depends from and incorporates all of the limitations of claim 22. Accordingly, for at least the same reasons as those set forth above in connection with claim 22, it is respectfully submitted that the rejection of claim 24 is in error and should be reversed.

E. The Prior Art Rejection of Claims 3-6 Should be Withdrawn

Claims 3-6 all stand rejected as allegedly being unpatentable over Notman. For a plurality of independent reasons, it is submitted that the rejections of claims 3-6 should be reversed.

Claims 3-6 all depend from and incorporate all the limitations of claim 1. Accordingly, as an initial matter, the rejection of claims 3-6 should be reversed for at least the same reasons as those set forth above in connection with claim 1.

In addition, claims 3-6 contain further limitations directed to additional partitions in the enclosure. The Examiner alleged that the additional partitions would have been an obvious modification of Notman. To this end, the Examiner appears to allege that the motivation to add additional partitions in Notman are that "it is well established that the duplication of parts is obvious". (Second Final Office Action at p.6). However, a mere duplication of parts is not claimed. The division of a second chamber into (at least) six subcompartments is claimed. This is not a mere duplication of parts, but rather a significant subdivision of an existing structure. There is no motivation or suggestion to add more partitions to Notman to create six subcompartments in a second chamber.

Thus, in addition to the reasons as those set forth above in connection with claim 1, the obviousness rejection of claims 3-6 should be reversed.

F. Claim 21

Claim 21 stands rejected as allegedly being obvious over Notman. As an initial matter, claim 21 depends (indirectly) from and incorporates all the limitations of claim 1. In particular, claim 21 depends from claim 2, which in turn depends from claim 1. Accordingly, for at least those reasons set forth above in connection with claim 1, it is respectfully submitted that the rejection of claim 21 is in error and should be reversed.

1. Additional Limitations of Claim 21

Claim 21 depends on claim 2, which further recites a second partition in the enclosure, as well as a second orifice in the second partition, the second orifice having a central axis that is offset with respect to the central axis of the first orifice . Claim 21 also recites the following limitations:

> said first orifice comprises a largest orifice in said first partition, and said second orifice comprises a largest orifice in said second partition.

As a consequence, the first orifice is the *largest* orifice of the first partition *and* has a central axis that is offset from the central axis of the largest orifice of the second partition.

3. Notman Does Not Teach or Suggest Partitions with Offset Orifices

Notman does not disclose a device having first and second partitions having offset largest orifices. In particular, the Examiner has alleged that the first and second partitions

of Notman are the catalyst beds 12a and 12b. The Examiner admitted, however, that "Notman does not teach that his first and second orifice comprise the largest orifice in his first and second partitions respectively such that the central axis of the first and second orifice are offset relative to each other." (Second Final Office Action at p.5).

The Examiner contended, nevertheless, that:

> "It would have been obvious to one of ordinary skill in the art . . . to optimize the dimension of Notman's orifice in each of the first and second patitions such that the largest orifice of each partition produce axis that are offset relative to each other. . .
>
> Motivation . . . to optimize the dimension of Notman's orifice in each of the first and second patitions such that the largest orifice of each partition produce axis that are offset relative to each other, . . . is to provide for longer residence time for the flowing gasses (column 3, lines 7-8; column 4, lines 12-17).

(Second Final Office Action at pp.5-6). Applicants submit that the Examiner has not alleged a legally sufficient motivation or suggestion to modify Notman's device to include largest orifices in the two partitions that have offset central axes.

First, contrary to the Examiner's assertions, Notman does not suggest the desirability of providing longer residence time for the flowing gasses. Second, and perhaps more importantly, Notman does not suggest that the use of partitions having offset largest orifices would provide longer gas residence time.

With regard to the desirability of providing longer residence time, the Examiner cited Notman at columns 3 and 4. (Second Final Office Action at p.6). The passages cited by the Examiner as providing support for this proposition are set forth below:

> . . . united. More than two subdivisions can be provided, but at the cost of some complexity in piping.
>
> . . .
>
> . . . higher pressures. The volume space velocity through the total catalyst is suitably in the range of 5000-50,000 $hour^{-1}$. The gas passed over the catalyst is normally a mixture of fresh synthesis gas and unreacted gas recycled from methanol recovery by cooling, condensation and separation.

(Notman at col. 3, lines 7-8 and col. 4, lines 12-17).

Nowhere in the above cited passages is there any remote implication that there is a desire to increase gas residence time. There certainly is no teaching or suggestion in the prior art that employing two largest orifices in partitions such that they are offset with respect to each other constitutes a desirable or efficient manner to increase gas residence time.

For at least these reasons, it is respectfully submitted that the Examiner has failed to set forth a prima facie case of obviousness with respect to claim 21. Accordingly, for reasons independent of those set forth above in connection with claim 1, it is respectfully submitted that the rejection of claim 21 is in error and should be reversed.

G. Claim 23

1. Claim 23 depends from Claim 22

As an initial matter, claim 23 depends from and incorporates all the limitations of claim 22. Accordingly, claim 23 is patentable over the prior art for at least the same reasons as those set forth above in connection with claim 22.

2. Additional Limitations of Claims 23

Claims 23 also recites the following limitations:

> the gas port is disposed between the inlet and the outlet of the passageway

Accordingly, claim 23 adds a limitation similar to that discussed above in connection with claim 1.

As discussed above, Notman does not disclose a gas port disposed between the inlet and the outlet of the passageway of the gas connector. Again, the Examiner asserts

that it would have been *obvious* to "optimize the dimension (height) of Notman's gas connector passageway such that his gas port is disposed between the inlet and outlet of his passage way . . . to provide for longer residence time for the flowing gasses." (5/5/04 Office Action, pp.5-6).

Again, the motivation cited by the Examiner for such a modification is allegedly to "provide for longer residence time for the flowing gasses." As discussed above in connection with claim 21, Notman does not disclose any necessity or desirability for "provid[ing] for longer residence time for the flowing gasses". As a consequence, the Examiner has not provided a legally sufficient motivation or suggestion to modify Notman.

In addition, the Examiner proposed that optimizing the height of the gas connector would somehow result in the gas port being disposed between the inlet and the outlet of the gas connector passageway. The Examiner's proposition that optimizing the height of the gas connector would result in the repositioning of the gas port in a manner consistent with claim 1 is merely speculative. Even if there were a motivation to change the height of the heat exchanger 40 (the alleged gas connector), that could be accomplished in any number of ways without the sparger 30 being located between the main feed 34 and the feed holes 32 of Notman.

For all of the above reasons, it is respectfully submitted that the obviousness rejection of claim 23 should be reversed for reasons independent of those set forth above in connection with claim 21.

H. Claim 11

Claim 11 is directed to an arrangement for abating effluent that includes an enclosure, a gas connector, a gas dispensor, an exit port and an etch apparatus. The enclosure, gas connector, gas dispensor and exit port include many, but not all of the limitations of corresponding elements of claim 1. Claim 11, however, cites the following additional limitations corresponding to the etch apparatus:

> an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

1. The Examiner's Rejection of Claim 11

The Examiner rejected claim 11 as allegedly being obvious over Mundt in view of Notman. The Examiner admitted that Notman does not teach the claimed etch apparatus. Instead, the Examiner contended that it would have been obvious to replace Mundt's process effluent abatement arrangement with the catalytic gas reactor of Notman. (Final Office Action at p.6).

In particular, the Examiner cited the following reasoning for modifying the process effluent abatement arrangement of Mundt:

> Motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

(Final Office Action at p.7).

2. The Examiner Has Not Identified A Legally Sufficient Motivation to Combine

The above-quoted paragraph does not establish a legally sufficient motivation or suggestion to modify Mundt as proposed by the Examiner. Applicants respectfully

submit that Mundt does not suggest that a catalytic converter of the type disclosed in Notman would reduce hazardous process chemicals. The passages of Mundt cited by the Examiner in support of this proposition are set forth below:

> One example of a technology which may readily implement the present invention is the semiconductor fabrication industry. This industry is making increased use of low pressure operations such as plasma etching, plasma assisted deposition and the like. these processes require sophisticated vacuum pumping systems having expensive parts and often using expensive, inert pump oil. Since corrosive gases are utilized in these processes, the unreacted gases or the reaction by-products of these gases can be harmful to the pump system; it is thus desirable that they be treated prior to their passage into the pump mechanism. Presently, the treatment of these materials is done in two ways.

(Mundt at col. 1, lines 22-33).

The above-cited portions of Mundt do not suggest that the effluent abatement arrangement taught by Mundt should be replaced at all, much less replaced by the catalytic converter taught by Notman. Mundt adequately describes a reaction chamber specially designed for use in the abatement of effluents in an etch apparatus. (See *id.* at cols. 5 and 6). Nothing in Mundt suggests replacing this reaction chamber with a different structure that has otherwise been designed for a different purpose.

In particular, Notman is directed to a device used for the exothermic synthesis of ammonia or methanol. (Notman at col. 1, lines 4-6). Nothing in Mundt suggests a device that performs exothermic synthesis of ammonia or methanol would be an adequate replacement for the reaction chamber of Mundt, much less a *desirable* replacement.

Accordingly, the Examiner has not set forth a legally sufficient motivation or suggestion to replace the effluent abatement apparatus of Mundt with the exothermic synthesis reactor of Notman. For at least this reason, the obviousness rejection of claim 7 is in error and should be reversed.

I. Claims 12-14

Claims 12-14 stand rejected over Mundt in view of Notman in further view of McGinness. Claims 12-14 all depend from and incorporate all of the limitations of claim 11. As discussed above, there is no legally sufficient motivation or suggestion to combine Mundt and Notman as proposed by the Examiner. McGinness does not supply the missing motivation or suggestion. Accordingly, for at least the same reasons as those set forth above in connection with claim 11, it is respectfully submitted that claims 12-14 are patentable over the prior art.

J. Claim 7

Claim 7 stands rejected as allegedly being obvious over Mundt in view of Notman. As will be discussed below, the obviousness rejection of claim 7 should be reversed.

1. Claim 7 depends from Claim 1

As an initial matter, claim 7 depends from and incorporates all the limitations of claim 1. While the rejection of claim 7 is over Mundt in view of Notman, Mundt does not overcome the deficiencies of Notman with respect to claim 1, discussed above. Accordingly, claim 7 is patentable over the prior art for at least the same reasons as those set forth above in connection with claim 1.

2. Additional Limitations of Claims 7

Claims 7 also recites the following limitations:

an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

As discussed above in connection with claim 11, there is no motivation or suggestion to combine Mundt and Notman as proposed by the Examiner. Accordingly, for reasons independent of those set forth above in connection with claim 1, it is submitted that the obviousness rejection of claim 7 is in error and should be reversed.

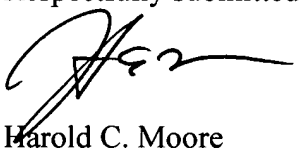
K. Claim 9

The rejection of claim 9 should be reversed for at least the same reasons as those set forth above in connection with claim 1.

(8) CONCLUSION

For all of the foregoing reasons, claims 1-3, 5, 8, 10, 17-21, 27-34 and 39-45 are not unpatentable under 35 U.S.C. § 102(b), and claims 4, 6, 7, 9, 11-16, 22-26 and 35-38 are not unpatentable under 35 U.S.C. § 103(a). As a consequence, the Board of Appeals is respectfully requested to reverse the rejection of these claims.

Respectfully submitted,



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CLAIM APPENDIX

1. (amended) A process effluent abatement arrangement, comprising:

an enclosure which defines an interior void;

a first partition having a first orifice defined therein, said first partition being positioned within said interior void such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber;

a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in direct fluid communication with said first chamber of said enclosure, said gas port being downstream of said inlet and upstream of said outlet;

a gas dispenser in direct fluid communication with said second chamber of said enclosure; and

an exit port in fluid communication with said interior void.

2. The arrangement of claim 1, further comprising:

a second partition having a second orifice defined therein,

wherein (i) said second partition is positioned within said second chamber, (ii) said first orifice has a first central axis, (iii) said second orifice has a second central axis, and (iv) said second central axis of said second orifice is offset relative to said first central axis of said first orifice.

3. The arrangement of claim 2, further comprising:

a third partition having a third orifice defined therein;

a fourth partition having a fourth orifice defined therein;

a fifth partition having a fifth orifice defined therein; and

a sixth partition having a sixth orifice defined therein,

wherein said second partition, said third partition, said fourth partition, said fifth partition, and said sixth partition are all positioned within said second chamber such that said second chamber is divided into a first sub-chamber, a second sub-chamber, a third sub-chamber, a fourth sub-chamber, a fifth sub-chamber, and a sixth sub-chamber.

4. The arrangement of claim 3, wherein:

each of said first partition, said second partition, said third partition, said fourth partition, said fifth partition, and said sixth partition are spaced apart along a longitudinal axis of said enclosure so that said longitudinal axis passes through a center point P_1 of said first partition, a center point P_2 of said second partition, a center point P_3 of said third partition, a center point P_4 of said fourth partition, a center point P_5 of said fifth partition, and a center point P_6 of said sixth partition, and

said second partition is positioned adjacent to said first partition such that (i) said first sub-chamber is interposed said first partition and said second partition and (ii) said first orifice is in direct fluid communication with said first chamber and said first sub-chamber,

said third partition is positioned adjacent to said second partition such that (i) said second sub-chamber is interposed said second partition and said third partition and (ii) said second orifice is in direct fluid communication with said first sub-chamber and said second sub-chamber,

said fourth partition is positioned adjacent to said third partition such that (i) said third sub-chamber is interposed said third partition and said fourth partition and (ii) said third orifice is in direct fluid communication with said second sub-chamber and said third sub-chamber,

said fifth partition is positioned adjacent to said fourth partition such that (i) said fourth sub-chamber is interposed said fourth partition and said fifth partition and (ii) said fourth orifice is in direct fluid communication with said third sub-chamber and said fourth sub-chamber,

said sixth partition is positioned adjacent to said fifth partition such that (i) said fifth sub-chamber is interposed said fifth partition and said sixth partition and (ii) said fifth orifice is in direct fluid communication with said fourth sub-chamber and said fifth sub-chamber, and

an end wall of said enclosure is positioned adjacent to said sixth partition such that (i) said sixth sub-chamber is interposed said end wall and said sixth partition and (ii) said sixth orifice is in direct fluid communication with said fifth sub-chamber and said sixth sub-chamber.

5. The arrangement of claim 4, wherein:

said third orifice has a third central axis and said third central axis of said third orifice is offset relative to said second central axis of said second orifice,

said fourth orifice has a fourth central axis and said fourth central axis of said fourth orifice is offset relative to said third central axis of said third orifice,

said fifth orifice has a fifth central axis and said fifth central axis of said fifth orifice is offset relative to said fourth central axis of said fourth orifice, and

said sixth orifice has a sixth central axis and said sixth central axis of said sixth orifice is offset relative to said fifth central axis of said fifth orifice.

6. The arrangement of claim 5, wherein:

said longitudinal axis divides said enclosure into a first half and a second half,

said first central axis of said first orifice is aligned with said longitudinal axis,

said second orifice of said second partition, said fourth orifice of said fourth partition, and said sixth orifice of said sixth partition are located within said first half of said enclosure, and

said third orifice of said third partition and said fifth orifice of said fifth partition are located within said second half of said enclosure.

7. The arrangement of claim 1, further comprising:

an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

8. The apparatus of claim 1, further comprising:

a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector.

9. The apparatus of claim 8, further comprising:

an electrical heating element which is in thermal communication with said gas provided by said gas source so that said gas is heated prior to being advanced into said passageway of said gas connector.

10. The apparatus of claim 1, further comprising:

a humidified gas source for providing a humidified gas, said humidified gas source being in fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and into said second chamber of said enclosure.

11. An arrangement for abating effluent, comprising:

an enclosure which defines an interior void;

a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in fluid communication with said interior void of said enclosure;

a gas dispenser in fluid communication with said interior void of said enclosure;

an exit port in fluid communication with said interior void of said enclosure; and

an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

12. The arrangement of claim 11, further comprising:

a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector; and

a heating element which is in thermal communication with said gas provided by said gas source so that said gas is heated prior to being advanced into said passageway of said gas connector.

13. The arrangement of claim 12, further comprising:

a humidified gas source for providing a humidified gas, said humidified gas source being in fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and into said interior void of said enclosure.

14. The arrangement of claim 13, further comprising:

a first partition having a first orifice defined therein, said first partition being positioned within said interior void of said enclosure such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber; and

a second partition having a second orifice defined therein, wherein (i) said gas connector is in fluid communication with said interior void such that said etch gas product generated by said etch apparatus is advanced directly into said first chamber of said interior void, (ii) said second partition is positioned within said second chamber of said interior void, (iii) said gas dispenser is in fluid communication with said interior void such that said humidified gas is advanced directly into said second chamber of said interior void, (iv) said first orifice has a first central axis, (v) said second orifice has a second central axis, and (vi) said second central axis of said second orifice is offset relative to said first central axis of said first orifice.

21. The arrangement of claim 2, wherein said first orifice comprises a largest orifice in said first partition, and said second orifice comprises a largest orifice in said second partition.

22. A process effluent abatement arrangement, comprising:

an enclosure which defines an interior void and a longitudinal axis;

a first partition having a first orifice defined therein, said first partition being positioned within said interior void such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber;

a second partition having a second orifice defined therein, wherein (i) said second partition is positioned within said second chamber, (ii) said first orifice has a first central axis that is substantially aligned with the longitudinal axis of the enclosure, said first central axis being unobstructed such that gas can pass from the first chamber to the second chamber through the first central axis, (iii) said second orifice has a second central axis, and (iv) said second central axis of said second orifice is offset relative to said first central axis of said first orifice;

a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in direct fluid communication with said first chamber of said enclosure;

a gas dispenser in direct fluid communication with said second chamber of said enclosure; and

an exit port in fluid communication with said interior void.

23. The arrangement of claim 22, wherein the gas port is disposed between the inlet and the outlet of the passageway.

24. The arrangement of claim 22, further comprising:

a humidified gas source for providing a humidified gas, said humidified gas source being in fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and into said second chamber of said enclosure.

25. The method of claim 22, wherein said first orifice comprises a largest orifice in said first partition, and said second orifice comprises a largest orifice in said second partition.

26. The method of claim 25, further comprising at least one additional partition in addition to said first partition and said second partition, each said additional partition having a respective largest orifice, said longitudinal axis dividing said enclosure into a first half and a second half, said largest orifices of said first partition, said second partition, and said at least one additional partition being alternatingly disposed in said first half and said second half.